The Genesis of Electronics Stewardship at
Sandia National Laboratories/New Mexico (FY06)

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Abstract:

As a new partner to the Federal Electronics Challenge (FEC), Sandia National Laboratories/New Mexico (SNL/NM) has made numerous strides to change the way electronic office equipment is managed throughout its life-cycle to a more environmentally sound process. Beginning with buying a large volume of "green" computers; going on to use computers and peripherals more efficiently on a large network scale; and finally evaluating and reworking the end-of-life process that all systems must go through to guarantee appropriate reuse and recycling of materials: each of these life-cycle stages have grown and been refined to the point that SNL/NM is proud of its efforts to protect the health of the environment and associated individuals.

Overview:

Acquisition/Procurement:

SNL/NM's Procurement department has been and continues to be very proactive in including environmentally preferable language in requests for bids and final contract language. Because of this, SNL/NM already purchases virtually no new CRT monitors, in favor of more energy efficient LCD monitors, and nearly 100% of all new monitors purchased are Energy Star compliant thanks to contract stipulations.

To build on past success, Procurement was invited to participate in an introductory Northeast Recycling Council sponsored Electronic Product Environmental Assessment Tool (EPEAT) teleconference. By the end of this single teleconference during the second quarter, Procurement was prepared to not only integrate preferential EPEAT language into current and future technology contracts, but was also interested in developing our own environmental ranking matrix to encourage both vendors and employees to seek and purchase "green" printers, which EPEAT is not yet addressing. This matrix has been designed to build upon pre-existing environmental printer standards such as Germany's Blue Angel and Japan's EcoMark, but customized to SNL/NM's procurement needs to take into account specific functionality, life-cycle expenses and material consumption. Revised contract language identifying EPEAT is scheduled to be in place by January of 2007. However, EPEAT-registered products are already flooding SNL/NM's doors. Thanks to Dell, HP and Apple's progressive business lines of computers, and SNL's Chief Information Officer's internal "preferred systems list" which designates what computer systems employees are allowed to order, during FY06 SNL/NM was able to spend over $7.5 million to purchase 2,822 desktop systems, 989 laptops, and an additional 602 monitors, all of which are registered as EPEAT-Silver.

In the awareness arena, Procurement held several technology mini-trade shows during FY06, enabling face-to-face discussions with our direct vendors as well as manufacturers' sales representatives. These opportunities were pursued to ensure each vendor and manufacturer were aware of SNL's intent that future electronics purchases will meet the new Energy Star revision, EPEAT-registered equipment, green printing technology, and improved warrantee coverage and end-of-life options. Discussion has also been started with the information technology support group to understand what the ramifications of extended warrantees and computer lifespans would be on SNL operations.

Operation & Maintenance:

SNL's information technology support group has been successfully migrated to a network-based enterprise delivery of Common Operating Environment (COE) software programs for several years. The programs available include an office productivity suite, an Internet security package, operating system upgrades, web development software, and more. This has resulted in an incredible reduction in boxed manuals and software. New software programs continue to be evaluated and made available. A new software program that was deployed in FY06 was a control program across SNL's computer network to activate and manage every networked computer monitor's Energy Star features within five minutes of becoming idle. Within the first

week of deployment, over 9,300 computers logged into the network and had their monitors' Energy Star features activated. Though not standard, it is quite common for a single computer to have two or more monitors attached, so the number of monitors affected by this program could well be above 12,000. To raise awareness, several internal electronic newsletter articles were sent giving details of this network-enabled activation and the energy savings achieved.

On a more human note, a grassroots "Energy Nag" program of coordinated volunteers started in FY06 based on a one-man initiative that retired with the employee a few years ago. These new volunteers patrol their departments or buildings in the evenings to turn off both active load and vampire load equipment, and to "nag" the person responsible for the energy waste with a custom sticky note outlining the offense.

In an effort from the opposite direction, SNL is working to reduce the number of pieces of equipment that could negligently be left powered. Work is in progress to expand a pilot of 10 copy machines that have been converted into networked printing and copying stations. Since almost all of SNL's 450 leased copy machines are network-capable of printing, faxing and scanning, the goal is to displace the need for many pieces of office equipment that can already be accomplished in a single piece of equipment. The first objective is to complete networking the copiers to enable printing from employees computers. This will reduce the need for networked and personal black-and-white laser printers and increase the availability of duplexing. Pending approval from security, the fax, e-fax and scanning functionality should be activated.

In a related resource conservation awareness activity, employees have been encouraged to explore using Microsoft Outlook's Calendar program to supplant the need to order annual paper calendars, refills and planner systems. Secretaries are being targeted specifically to discourage from buying unnecessary copies of calendars and actively soliciting calendar orders. The intention is to swing the paper calendar culture here to being only passively available to those that desire to actively seek out new paper calendars. Multiple educational resources for functionality and efficient use of Microsoft Outlook Calendar have been included through the awareness activity.

End of Life Management Practices:

SNL is able to track all of its CPUs, laptops and other expensive or desirable electronic equipment during each unit's useful life through a property accountability system. Through this, the information technology support group is able to determine the age and value of equipment and who is currently in possession of it.

SNL/NM also has an active internal reuse program for computer systems. Informally within departments, when an employee leaves or has a new computer purchased, the individual with the oldest computer in the group can receive the first employee's computer as a hand-me-down upgrade, and then retires the oldest computer to Reapplication for potential reuse elsewhere inside SNL, through the K-12 program, resale, or eventual recycling. Once a computer system is eventually sent to Reapplication, as required by corporate policy, if the computer still meets the COE minimum requirements, it is made available on an internal website to both SNL/NM and SNL/California for any department to request for free. The computers might be requested for

new employees, student interns or even upgrades for those that have yet older models. Computers originating at SNL/California are available to SNL/NM as well.

Once the computers have been offered to the employees of SNL for internal reuse and are not requested, the next option for reuse is through the K-12 Computer Donation Program. SNL Reapplication held two K-12 events during FY06, in accordance with Executive Order 12821, which resulted in 437 CPUs, 724 monitors, and 67 laptops being donated to over 40 local New Mexico schools.

Once reuse options have been exhausted, the next step is now resale and/or recycling. To serve this purpose, after evaluating the Environmental Protection Agency's Recycling of Electronics and Asset Disposition (READ) program and the Federal UNICOR recycling program, an audited and approved commercial recycling facility was identified to first resell usable material and to finally recycle leftover equipment in an environmentally sound fashion. Aside from monitors and CPUs *sans hard drives*, printed circuit boards (19,893lbs), software media (3,102lbs), two-way radios (5,847lbs), and all other computer peripherals (2,242lbs) were sent to ECS Refining in Santa Clara, California at the very end of FY06. This shipment avoided approximately $70,000 in waste chargeback fees and netted $41,567 in recycling revenue. While what happened and what was allowable for these other materials in the past is unclear, this is a strong, positive change regarding electronics stewardship at SNL/NM.

CPUs with hard drives removed are no longer sent to a scrap metal dealer for shredding, but are instead now sent to an audited and approved recycling facility for harvesting of separable resalable components, reclamation of precious metals, maximized recycling of materials, and appropriate handling and disposal of any remaining material. Prior to this change in the fourth quarter, approximately 2500 CPUs and 625 laptops were sent for recycle via scrap metal shredding. Likewise, CRT and LCD monitors of unknown operating status are no longer sent for local bulk auction, but are instead sent to an audited and approved recycling facility for harvesting of resalable units or components, reclamation of precious metals, maximized recycling of materials including domestic recycling of leaded glass, and appropriate handling and disposal of any remaining material. Prior to this change in the fourth quarter, approximately 282 monitors were sent for resale to untracked parties via local auctioneer. The new method is a significant improvement over the previous method.

Conclusion:

Thanks to insight and strong participation from the Procurement, information technology support group and Reapplication, SNL/NM has been able to make a broad swath of changes to the way it thinks about and handles electronics. With any serious issues corrected, SNL/NM is in a good position to move forward in FY07 to continue implementing new positive changes to the current established process.